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*COLOUR HARMONY*  
*ITS THEORY AND PRACTICE*

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*By the same Author :*

THE ROMANCE OF THE ALPHABET  
THE TEACHING OF ART TO INFANTS AND  
JUNIOR CHILDREN  
COLOUR HARMONY FOR BEGINNERS

*Frederick Warne & Co. Ltd.*



# COLOUR HARMONY

ITS

## THEORY AND PRACTICE

By

ARTHUR B. ALLEN

L.C.P., F.R.S.A., A. Coll. H.

*With Two Colour Plates  
and Twenty Page Illustrations*



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*1937*

## FOREWORD

*Colour Harmony: Its Theory and Practice* is closely linked to *Colour Harmony for Beginners* and I think the reason is clear.

Whereas *Colour Harmony for Beginners* is a little volume so written that the newcomer to this science of colour can begin right away with pencil and colour box, working out the beauties that are to be found in the field of colour harmony, the present volume gives all this practical assistance and, in addition, it gives the essential background knowledge without which the teacher and the student may find themselves at a loss.

It is one thing to know the mere mechanics of doing. It is another thing to know the *raison d'être* for so doing. *Colour Harmony: Its Theory and Practice* has been designed to cover clearly and concisely both spheres.

I have been guided in my choice of subjects included in this volume by the numerous questions asked of me in my lectures during the past two years. I have been guided also

## FOREWORD

by the topics discussed in letters sent to me by members of my audiences after my lectures were concluded and my listeners had had time to reflect upon my words. By taking my public work as my guide in the selection of points of interest in this volume, I feel that not only am I on sure ground but that also I shall be able to touch upon points of majority interest.

It is more than possible that the reader will find his or her own particular problem ignored. This is almost inevitable since as I have emphasised in my work, colour is essentially an individual study. Should this be so then most cordially I invite correspondence for—in the frank exchange of ideas, opinions and experiences lies the laying of sound foundation for creative work. Readers will be able to find me c/o the publishers.

ARTHUR B. ALLEN.

*London, 1937.*

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# COLOUR HARMONY

## *ITS THEORY AND PRACTICE*

### CHAPTER I

#### COLOUR VOCABULARY

THERE is a language of colour as there is a specific language for every other specified activity. And as usual with a special vocabulary some confusion results in exact meanings. In this chapter I aim to set forth the main colour words and to state a definition that may be generally accepted. I aim at a majority acceptance, for it will not be possible for a long time yet to standardise terms absolutely. One can get near to this desired standardisation toward which I aim.

Teachers will be doing signal service if they insist upon exactitude in definitions as they insist upon exactitude in grammatic and in scientific definitions. It makes the foundation of colour science so much more accessible to the man in the street. And contrary to some opinions it does not result in a cramping of the creative impulses. On the contrary it releases them more

## COLOUR HARMONY

profusely for it removes the mind-fogging confusion right at the onset.

The beginning of our colour work is with the *hues*. The term *hue* indicates the chromatic value of a colour.

**Colour** in the past has been misused. The term should include the black, grey and white. For colours not including these three "neutrals" the term *chroma* is more accurate.

Recognition of colour is due to colour-sensations of which there are two distinct groups. .

(a) the achromatic (black, grey, white)

(b) the chromatic (yellow-blue, red-seagreen and all chromata derivative therefrom)

**Luminosity** a term much used in the older vocabularies means the brightness of the chromata.

**Contrast** is best illustrated by the combination of opposite chromata taken from the perfect circle. It indicates the heightening of the values of the chromata by direct association.

**Analogy** results from the association of adjacent chromata taken from the perfect circle.

**Harmony** results when the combination of selected chromata is pleasing to the eye.



## CHAPTER II

### COLOUR STORIES

I THINK the time has come when it should be stated very emphatically that colour work does not include only work done in *pigments*. After all there is the work of the physicist who works in the light rays and everyone interested in colour at all should do a little simple experimenting with a light box in which not only can the spectrum colours be seen but wherein it is possible for the student of colour to isolate any one of the coloured rays in the spectrum.

Then there is the work of the psychologist who examines the effect that colours have upon the mind of the beholder.

\* Then, too, there is a romantic field which delights young and old alike, the field of story. All teachers are agreed upon the efficacy of the story approach to learning. It is an ancient and traditional method that has produced many a literary gem in the course of time.

## COLOUR HARMONY

Three colour stories stand out strongly, and all three come from the literature of the past.

The first is the story of the Rainbow as told in the Book of Genesis. Not only an artistic glory in itself, not only gem among Hebraic writings but a Covenant between God and man in the days when the Earth was young.

This version of the creation of the Rainbow marks the highlight of dramatic action in the graphic story of the Flood, from the first visitation, through the building and the launching of the Ark, the course of the Flood itself, the flight of the raven and of the dove, the resting of the Ark and the emergence of the new epoch in human life.

What possibilities for free illustration lie in that marvellous story. And above every episode curves the promise of the Rainbow.

The story of the Rainbow can be found also in the Greek myths. Juno, the Goddess of Heaven, must have a messenger to do her bidding, even as Jupiter had his Mercury, Prospero his Ariel and Oberon his Puck.

The messenger attached to the Court of Juno was Iris—a maiden dressed in marvellous robes, multi-coloured. No action of the gods and

## COLOUR STORIES

goddesses escaped the eye of the humans below although much escaped their understanding. So when Juno sent Iris upon a message, Iris moved through the air at great speed to do the will of her royal mistress.

So swiftly did Iris fly that the human eye could not follow her flight. But the human eye could trace the pathway of that flight, for the multi-coloured robes worn by Iris left behind their wearer a haze of coloured light. And thus did the ancients describe the birth of the Rainbow.

Both these stories are excellent for very young children, for there are no hard names to remember and the stories are in the simplest and so the most attractive form.

The third story comes from the Norse myths, those tales of hardened warriors who still found time to enjoy some of the most beautiful stories ever told.

The gods lived in Asgard. Man lived in Midgard, and outside these twofold realms dwelt the evil spirits, the ogres and threatening forces which always sought to destroy the work of the gods.

At first there was a gulf fixed between Asgard and Midgard and the gods were imperfectly

## COLOUR HARMONY

informed of the comings and the goings of man upon earth (i.e. in Midgard).

So, determined to remove the weakness that this segregation was bound to produce, the gods ordained that a bridge should be erected to span the intervening space between Asgard and Midgard. This bridge was the Rainbow and to protect Asgard from possible attack from the enemies that hovered in the outer darkness the gods placed on guard—Heimdall, a splendid figure clad in white and gold. Heimdall took up his position at the foot of the Rainbow where the arc touched the earth. Here he stood four square against the enemies of both men and gods.

These are stories I have told again and again to children and to adult audiences interested in colour and always there opens up a new world—a world of romance—the romance of colour.

second wash. The second wash covers all the design except the sky. Thus you are putting a second wash on the mountain and upon the trees, increasing the tone of these in intensity. Stir your wash again. Charge your brush and begin the third wash. This time you will paint only the trees and the ground. You will *not* paint either the sky or the mountain.

You possess now a landscape painted in one colour—in monochrome. Tone one is the colour of the sky. Tone two is the colour of the mountain, and tone three is the colour of the trees. The background is tone one, the middle ground is tone two and the foreground is tone three.

And this is the first method by which you can paint in monochrome.

## METHOD TWO

For this I want you to use the same design, so redraw it. Now mix up a good orange wash—strong colour—but still transparent. Paint in the *foreground* first of all. When this is dry add about a teaspoonful of clean water to the original wash. Stir well and then paint in the middle ground. When this is dry add another teaspoonful of water to the original wash and paint in the

## COLOUR HARMONY

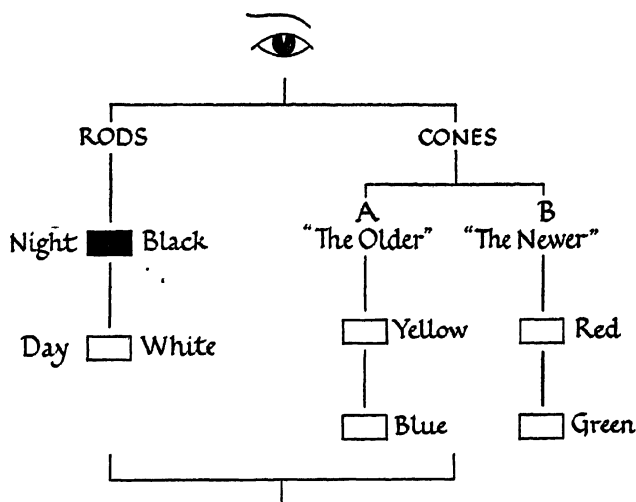
that flows in the valley beneath. You see all these things with your eyes, and you say that you rely upon your eyes to see things. You do rely upon your eyes, and this reliance is called vision. Vision depends upon the eyes, and the eye is a very delicate organ. It is made up of two parts (1) the rods, and (2) the cones.

The rods form the part of the eye which recognises black and white. The cones form the part of the eye which recognises colour. The cones are in two classes. Class one—which develops in an infant's eyes first—picks out the blue and the yellow things in your world. Class two—which develops later—picks out the red and the green things in your world.

Sometimes you find people who are colour blind. These people are, more often than not, colour blind in class two of the cones. They are not able to say "this is red" or "this is green." They get red and green all mixed up. Some people, happily very few people, are weak in class one of the cones. They cannot pick out blue or yellow. These unfortunate people are really colour blind and all the beauties of the colour world cannot appeal to them at all.

So—you recognise colour through the cones

## CHART FOR COLOUR UNDERSTANDING



A colour strikes the eye - vibrations - Physics.  
 The vibrations, picked up by the eye, are  
 passed on to the brain through the nervous  
 system - Physiology.  
 The brain translates the "vibration message"  
 - Psychology.





## WHAT IS COLOUR?

which are in your eye. And you are able to "pick up" the colour waves with your eye, like a wireless set picks up the sound waves in the air.

Colour is a sensation, and if you want to know what is meant by a sensation, stick a pin into your finger, and you will teach yourself. Always remember that some sensations are more painful than others.

When you paint a picture, you are combining several colours together, so that the eye is pleased with the final result. This means that every colour in the picture is in its right place and every colour is doing its own true work. If one colour upsets the colour pattern of your picture, then immediately correct the error. Your picture will not please you until you have done so.

## PRACTICAL EXERCISES

1. You must keep a Colour Reference Book—a Colour Scrap Book. Into this book you must stick samples of all the paper and other materials you can find that are coloured yellow, orange, red, and so on. Keep separate pages for this collection of coloured materials.
2. By the side of each piece of colour you collect, you must write the name, e.g. yellow. Then when you have done this you must try to find a name which describes the colour more accurately. Thus you may write yellow at first. This describes the family from which the colour has actually come.

## COLOUR HARMONY

But it may be a yellow-green, or a lemon yellow, or a yellow-red. This helps you to place the colour more accurately in the colour world, and when you have to paint in this particular colour it will assist you to make the colour you require.

Try to build up a really accurate colour list. Then memorise the colour names. You will find it extremely useful.

3. Take a clean page in your Colour Reference Book. Upon this page draw in simple outline about ten or twelve shapes of things that are yellow or red or blue or sea-green. Or if you prefer allow one line only for each colour instead of one page for one colour. Then colour the objects correctly.

Study very carefully the pages of drawings illustrating this chapter (Colour References Nos. 1 and 2). This will help you both in the understanding and the arrangement of the work.

A very useful exercise for children studying colour with any degree of seriousness is the identification of "after-images."

Every child is familiar, I suggest, with this fact. If he looks for any length of time at an electric light illuminating a room, and then looks away from that light to a darkened surface, or closes his eyes after looking at that light, he can still see the shape and glow of the lamp. The re-appearance of the image is called *the positive after-image* because the identical shape and form is "seen" but not so strongly of course as in the original instance.

COLOUR REFERENCE  
No 1

**Y** Yellow

**1**

Yellow-  
Green

**2**

Green-  
Yellow

**3**

Red-  
Yellow

**4**

Yellow-  
Red

**5**

**R** Red

**1**

Yellow-  
Red

**2**

Orange-  
Red

**3**

Red-  
Blue

**4**

Blue-  
Red

**5**

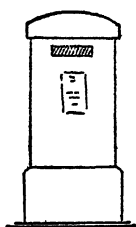
Showing how to set out a Page  
— in The Colour Reference Book.  
Single Square = Ostwald Standard Colour  
Numbers = Specimens in Colour Group

*any.*



COLOUR REFERENCE  
No. 2

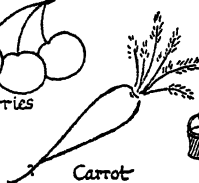
RED



Pillar Box



Cherries



Carrot



Red Riding Hood

YELLOW



Duck



Moon

BLUE



Little Boy Blue



Jug



Beads

SEAGREEN



Hills



Tree

alley



## WHAT IS COLOUR?

If one repeats the experiment, only this time not closing the eyes, nor looking at a dark surface, but gazing fixedly at a bright surface, the same image reappears but takes the form of a photographic negative. This reversal is called *the negative after-image* and the negative after-image is the stronger of the two reactions. It lasts longer and is felt more strongly.

With colour work this opens up a very interesting field. Ask the child to look well at a given colour, then to look away at a surface of paper and record the “new” colour which appears. This will result in the following table, given normal vision and ordinary lighting—daylight is of course preferable.

<i>Colour</i>	<i>After-image</i>
Yellow	Blue
Orange	Turquoise
Red	Sea-green
Purple	Leaf-green

These are the opposite colours in the Ostwald Circle of Standard Hues. They are Complementary Colours.

This work with the after-image explains much

## COLOUR HARMONY

of the attraction of colour harmonies which appear under analysis to be discordant, yet are bearable to the eye. The colours are intermingling and are being tempered somewhat by the effect of the after-image.



## CHAPTER IV

### HOW TO BUILD A COLOUR CIRCLE

A COLOUR circle is a chart which must serve as a guide to the artist. It must therefore be accurate. Just in the same way that a sailor relies upon his navigating chart to guide him through strange seas, so the artist relies upon his colour chart to guide him through new realms of colour.

A colour circle is a colour chart. It serves as a guide to all your work. So you cannot be too careful with the accuracy of your colours.

In the past, colour circles have been made from a series of colours which run from yellow through blue, back to yellow again. This principle of allowing one colour to run into another is very sound for it makes a circle possible. *But*, in the older colour circles yellow was followed by orange and orange was followed by red and so on, *with no scientific checking* of the yellow, orange or red, or of any other colours

## COLOUR HARMONY

on the chart. They were there just because they were yellow, orange and red.

To-day we aim to get greater accuracy. We know that some colours appear lighter than others, and if a circle is made from colours, some light and some dark, some brilliant and some dull; then the circle, instead of running smoothly to the eye, appears uneven and jerky. And the circle gives the impression of a series of steps in colour, instead of a very smooth and easy passage from one colour to the next. This is wrong. It makes the work of the colourist extremely difficult; for the first thing you have to do is to correct the colours, by trying to get them to look all equally bright, or all equally dull. That is not the work of the pupil or of the artist. It is really the work of the colour chemist.

The Ostwald Colours have been so selected, and so accurately controlled that they do follow one another quite smoothly around the circle. This has been made possible because the colour chemists—the men who make the colours for you to use—realise that the human eye can hold only so much colour. If you “overload” the eye with colour, the eye grows tired, the colours blur and you lose all sense of true colour value.

## HOW TO BUILD A COLOUR CIRCLE

**Red** is a hot colour. It is the colour of blood. The ancients used it to represent fire and life. People talk about “seeing red” when they are angry—so it is the colour which symbolises anger.

**Yellow** represents the sun and so is the colour of light and life—the form of life that is growing

## COLOUR HARMONY

strongly and in great health. When folk want to be very cruel about a man's lack of courage they say, "Oh, he's yellow"—meaning cowardly. That is because yellow not only symbolises the up-growing life but also the decay of life. Leaves turn yellow before they die. When you are ill you lose the red glow in your cheeks and your skin turns yellow. It is the other side of the picture, for yellow not only represents the sun—health, but also ill health—decay.

**Blue** represents the mind of mankind. It is symbolised in the phrase "true blue" meaning "as true as steel." Blue also represents cruelty and stands for all that lacks affection and kindness.

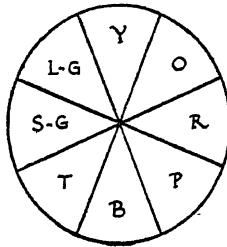
**Green** stands for the "ever-and-ever" principle in life. "Evergreen" sums up the meaning in a nutshell. Green stands for the everlasting life. It is a calm colour—full of peace and quiet. It is the colour of youth. "Lord, keep my memory green," writes Charles Dickens.

**Orange** represents all that is cheerful and active.

**Purple** the royal colour, used in the East to represent the majesty of an emperor, stands for wisdom and also for mourning. It stands

COLOUR REFERENCE  
No. 3

Eight  
Colour  
Circle



Ostwald  
Standard  
Hues

Y = Yellow

O = Orange

R = Red

P = Purple

B = Blue

T = Turquoise

S-G = Seagreen

L-G = Leafgreen

COLOUR PHRASES

Phrase

Meaning

1. "true blue"
2. "He's yellow"
3. "the wearing of the purple"
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Aug.



## HOW TO BUILD A COLOUR CIRCLE

for mourning because it combines red, which was the Egyptian symbol for after-life, and blue for eternity.

### PRACTICAL EXERCISES

1. Draw a circle with a diameter of 3". Divide this circle up into eight equal parts (*see Colour Reference No. 3*).
2. Into the eight equal parts put the eight Ostwald Standard Colours—yellow, orange, red, purple, blue, turquoise, sea-green and leaf-green. Underneath the circle write the names of these colours *in that order*. Learn the names of the colours *in that order*.
3. Make a list of phrases in which colour names are used, e.g. "true blue," "seeing red." Alongside these phrases write out the full meaning, showing how the colour reflects the meaning of the colour.
4. Paint a picture on a design using only the eight Ostwald Standard Colours. Try illustrating "The Pied Piper" or "May Day."

The teacher who begins work by using a colour circle finds its uses manifold. And since the use of one chart inevitably leads to the invention of another, I am suggesting various pieces of apparatus which I have found of service in the classroom.

**Colour Chart No. 1.** This is the colour wheel. A full circle of the eight Ostwald Standard Colours. Valuable since it must form the basis of all work in Ostwald (p. 37).

## COLOUR HARMONY

**Colour Chart No. 2.** Repeat the basic circle showing the eight Ostwald Standard Hues. Now cut a mask of size slightly larger than the original circle, so that all colours are obscured when the mask is laid flat upon the original circle of colours. Following the directions given in the diagram cut two "windows" opposite to one another so that when in place the mask reveals two opposing colours at the same time. This is a "ready-reckoner" for the child when working in opposite colours (p. 39).

**Colour Chart No. 3.** Repeat the basic circle showing the eight Ostwald Standard Hues. Cut a mask of size identical to that required for Chart No. 2. Cut a "window" in this mask sufficiently large to reveal three adjacent colours at one and the same time. This will be required when the teacher is explaining Analogous Harmonies (Chapter VIII). Examine the drawings illustrating this aspect of the constructive work and all will be clear (p. 41).

**Colour Chart No. 4.** Repeat the basic circle of colours. Cut the mask in the usual manner. In this mask cut three separate windows as shown in the diagram (Ostwald Circle No. 4, p. 43). Colour the mask as indicated in the diagram,



## HOW TO BUILD A COLOUR

i.e. three concentric circles, one to be n  
one to be coloured grey (g) and one n  
coloured black (n).

This will show to the child how a surrounding colour appears to alter the value of the colour exposed through the little window. An invaluable lesson in the realm of colour harmony.

## CHAPTER V

### COLOUR APPARATUS

WHEN one is really busy at work in the field of colour harmony the use of little devices that will speed up that work is always welcome.

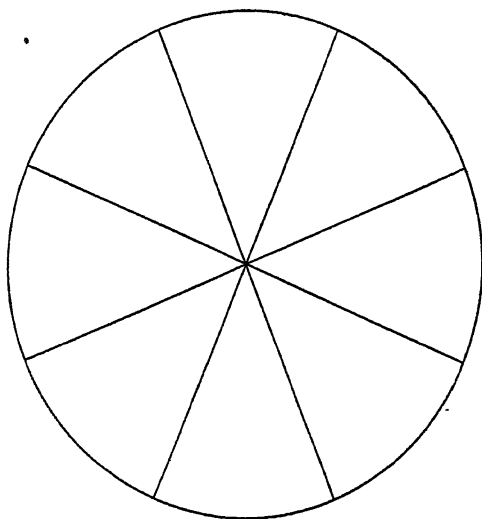
Now there are several pieces of simple apparatus which you can make for yourself, and in this chapter I intend to give you such directions that will be both useful and practical.

When you are making designs based upon the *harmony of opposites* you want a colour wheel so arranged that you can see at a glance the scientific opposite to any one colour. To create this, take a piece of white cardboard 8" x 6"; upon this draw a circle 4" in diameter and divide it into eight equal parts as given in Ostwald Circle No. 1. Colour each section correctly, preserving the order of the colour in this colour circle.

You now require another piece of cardboard sufficiently large for you to draw a circle  $4\frac{1}{2}$ " in diameter. Look carefully at Ostwald Circle

OSTWALD  
CIRCLE  
Nº 1

EIGHT  
STANDARD  
HUES

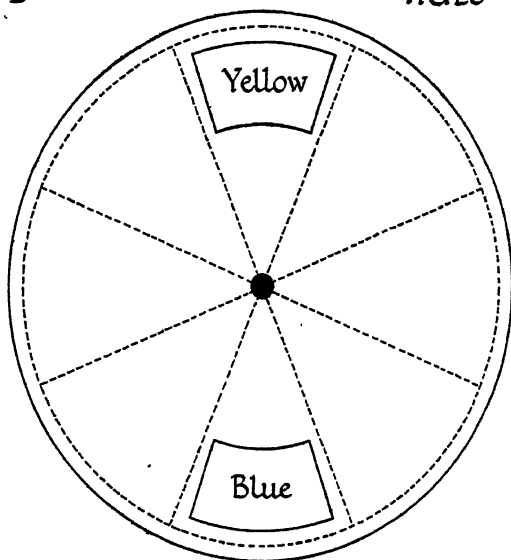


The Eight Ostwald Standard Colours  
selected from the NA Circle.



OSTWALD  
CIRCLE  
Nº 2

EIGHT  
STANDARD  
HUES

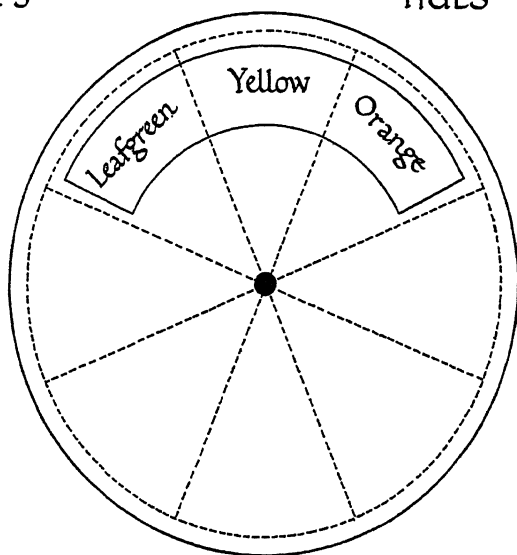


*Selecting the æsthetic opposites  
in the Ostwald Circle of Standard Hues.*



OSTWALD  
CIRCLE  
Nº 3

EIGHT  
STANDARD  
HUES



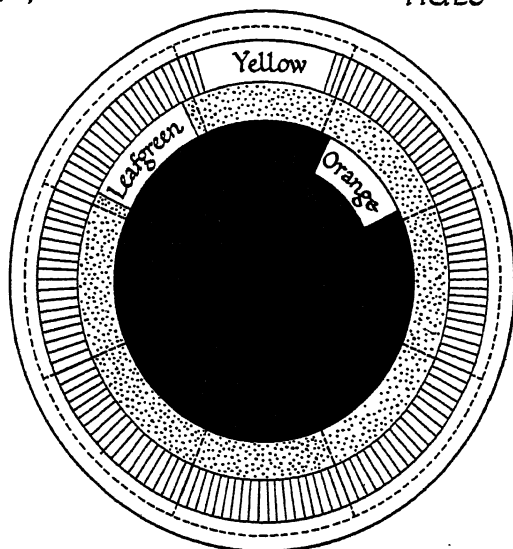
Selecting the Analogous Colour  
Groups in the Ostwald Circle  
of Standard Hues.





OSTWALD  
CIRCLE  
Nº 4

EIGHT  
STANDARD  
HUES



Showing how colours appear to change when  
subjected to the influence of THE NEUTRALS.

▤ = White Circle

▥ = Grey Circle

■ = Black Circle



## COLOUR APPARATUS

No. 2 illustrating this chapter. There you will see the eight-colour circle placed upon the 8" x 6" board. You will also see the second circle already cut out from the second board. Note the position of the two "windows" cut in this second circle. It is essential that these two "windows" be directly opposite to one another.

When you have done this, pin the loose circle, i.e. the one containing the "windows", on the top of the 8" x 6" board. Be very careful that the centres of the two circles coincide. Once this second circle is in place you can turn it to your heart's content, exposing the pairs of true opposites as you wish.

After work in the harmony of opposites comes the *analogous harmonies*. And for this you can make a little device which follows much the same lines as the first.

You will require another board 8" x 6" upon which you have painted the eight Ostwald Standard Hues. But instead of two windows you want only one window, to be sufficiently large to reveal the three adjacent colours in the circle. Now look at the drawing (Ostwald Circle No. 3) illustrating this and you will see more clearly than words can describe it.

## COLOUR HARMONY

These spinning circles attached to the basic board are often called the masks—for the very simple reason that they mask all the colours you do not require at the moment of working.

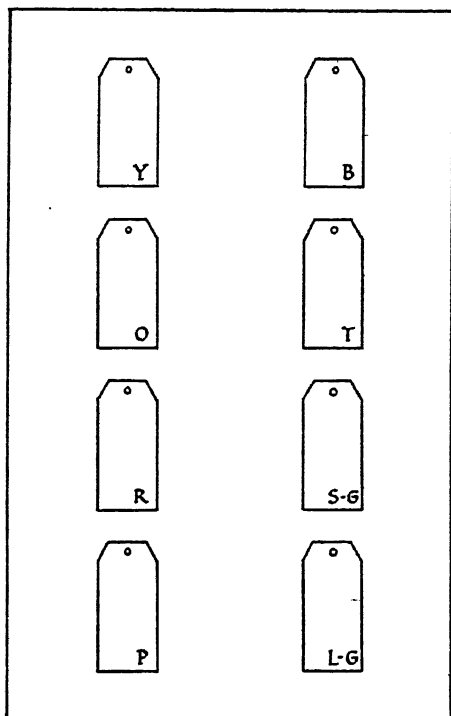
When you come to a device to illustrate the *dominant harmonies* the problem is slightly more complex because you are dealing with several grades in colour at one and the same time. But it can be done and here is an idea which I think you will find useful.

You require forty ordinary luggage labels—of the tie-on variety. Remove the little pieces of string first. Now take a stout piece of cardboard or a piece of 3-ply wood of a size approximately 15" x 22" (half imperial).

This cardboard or piece of 3-ply wood is the base of your new apparatus and should be coloured *grey*. This will allow the colours to show up in all their glory.

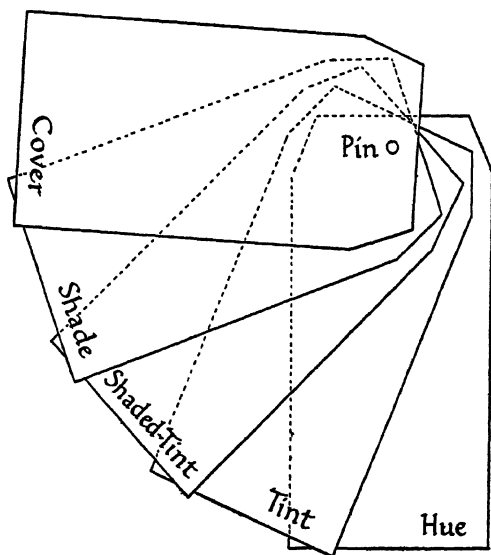
Colour eight labels, one each in the eight Ostwald Standard Hues. Stick these on to the base (see Chart for Dominant Harmonies No. 1). You will notice from the illustration that I have arranged these in pairs of opposites so that you can have tints, shaded tints and shades in these opposites, just by twisting the labels.

# CHART FOR DOMINANT HARMONIES Nº1.





## CHART FOR DOMINANT HARMONIES Nº 2.







## COLOUR APPARATUS

Once you have stuck these eight labels, representing the eight hues, upon the base, pierce the base through the eyelet hole of the label.

Colour the second set of eight labels in the *tint* of each of the eight standard hues.

Colour the third set of eight labels in the *shaded tint* of the eight standard hues.

Colour the fourth set of eight labels in the *shade* of each of the eight standard hues.

You now have eight labels representing the eight Ostwald Standard Hues stuck upon the base and perforated at the eyelet hole.

You have also three labels showing the tint, the shaded tint and the shade of each Standard Hue respectively.

Over the hue, lay the tint, over the tint, lay the shaded tint and over the shaded tint, lay the shade, so that each eyelet hole coincides with the one in the label stuck on to the base.

You still have eight labels uncoloured. These are to act as the covers, so upon each shade place a plain label to protect all beneath from dust and undue light. Through the coincident eyelet holes put a brass-headed split paper pin. Open the strips of the pin at the back of the base and so secure the labels in place. But—

## COLOUR HARMONY

naked strips are apt to catch, so paste a piece of brown paper over the back of the base and so protect not only the chart, but your hands and clothes from damage (Chart for Dominant Harmonies No. 2).

Upon the covering label print neatly the name of the colour that lies beneath.

Now when you want the tint, shaded tint, or shade of any one hue, or of more than one hue, all you have to do is to swing the appropriate set of labels fanwise about the pin and there you are.

## CHAPTER VI

### COLOUR HARMONY

WHEN two, or more than two, colours are used together in a picture or in a design—and the combination of those colours produces a pleasing effect to the eye—then we say we have created a colour harmony. In a word then, colour harmony is produced when colours are combined together with a happy result.

There are certain rules to be learnt, for colour harmony depends upon the maintenance of certain very strict rules. And there are three big classes of colour harmonies.

1. The Harmony of Opposite Colours.
2. The Harmony of Analogous Colours.
3. The Harmony of Monochromes.

#### *Rules.*

1. You can combine *opposite* colours together—when those colours are taken from a colour circle. This grouping of opposite colours produces the strongest colour effect. Yellow and

## COLOUR HARMONY

blue will combine, red and sea-green will combine. *But*—you must be careful of the quantity of colour you use in such a combination. Opposite colours produce the brightest effect.

2. **Analogous Colours**—that is, the colours which neighbour together—may be combined. Thus, leaf-green, yellow and orange will lie happily together in a design.

3. **Monochromes** can be worked into a very attractive design. A monochrome is a picture or a design, painted in one colour only—but the value of the colour alters considerably. Thus there may be light green, medium green and dark green *tones* of sea-green—all in the same picture, producing a delightful effect.

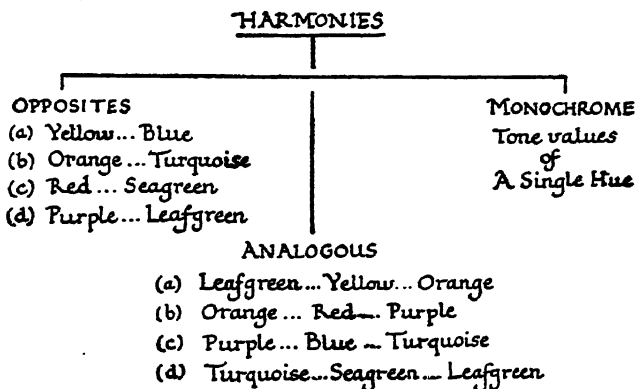
Details of these various groups are worked out for you in the following chapters. But at this point it is necessary for you to learn the actual groups of colour harmonies and the first simple rules.

## PRACTICAL EXERCISES

1. Study Colour Reference No. 4.
2. Learn the forms of harmonies. Get fixed in your mind the diagrams which explain very simply each form of harmony.

COLOUR REFERENCE  
No. 4.

TABLES TO REMEMBER



POINTS TO REMEMBER

1. Opposite colours produce the brightest effect.
2. Analogous colours are colours very closely related. e.g. Leafgreen - Yellow - Orange.
3. Monochromes are pictures painted in several tones of only one colour.

YOUR OWN NOTES



## COLOUR HARMONY

Because the original form of this work, *Colour Harmony for Beginners*, was intended for beginners I have not there made mention of the serious work that lies behind this simplified form. I do so now, confident that the teacher will want to know more of the fundamentals of the system.

Dr. Wilhelm Ostwald was not only a physicist of world renown but he was also an artist in his own right. So he was able to appreciate the difficulties of the artists' world while bringing to bear upon these difficulties the cool judgment and the analytical skill of the pure scientist. This dual equipment of one of the most remarkable men the world of science has yet provided enabled Ostwald to chart the world of colour in no mistaken manner.

This chart which embraces the colour world is indeed no chart in the ordinarily accepted sense—but a “solid.” The word solid is perhaps unfortunate, but it is the accepted term and so must stand. The best parallel is, I think, the geographic globe which charts the land and water masses of the Earth, with this exception perhaps, that the geographical globe has not that fine degree of accuracy possessed by the Ostwald solid.

## COLOUR HARMONY

Ostwald begins by charting the neutrals. These he places in a vertical "bar" which serves as the axis to his "solid." At the North Pole he places pure white. At the South Pole he places black. In between he grades the changes that fall from white to black, i.e. the greys. In our practical work we use the medium black as the working black and this Ostwald marks with the index letter (n), white he indicates as (a). Midway between (a) and (n) lies grey (g) which is the middle grey—an exact midway colour between white and medium black (n).

This is the axis.

Around this axis, at the midway point, is fixed the Equator. Upon the Equator are indicated the twenty-four hues of the Ostwald Circle. In our school work we use only eight of these twenty-four colours. Eight bright brilliant hues. The remaining sixteen you can obtain, if you so wish, by mixtures.

This gives us now an axis standing erect through a hoop of pure hues, with middle grey (g) in the centre of the axis.

Each of the twenty-four colours bears a number which never alters. So that the quotation of any one number tells us exactly what is the



## COLOUR HARMONY

correct starting point. Thus in our school work we use eight colours and these in terms of Ostwald's notation read as follows:

Yellow	. No. 2
Orange	. No. 5
Red	. No. 8
Purple	. No. 11
Blue	. No. 14
Turquoise	. No. 17
Sea-green	. No. 20
Leaf-green	. No. 23

Because these colours are the purest we can use in our practical work they are identified as the NA circle, i.e. the circle of relatively pure values, the NA indicating the quantity of black (n) and white (a) which must be added to the hue to give the aesthetic sensation we call yellow or orange or red, etc. So yellow becomes 2NA, orange becomes 5NA, red becomes 8NA and so on.

These are the hues which form the foundation of all our work.

Now as we journey from the Equator towards the North Pole, i.e. as we leave behind us the world of pure colour (hue) and approach more nearly to the world of pure white situated at

## COLOUR HARMONY

the North Pole, it follows logically that we find the pure colour lessens in quantity as the quantity of white increases. As we add white, and white, and still more white to a hue, we create the *tints*, for a tint is a hue to which white has been added. This occurs as we climb the surface of the solid.

If we journey from the Equator to the South Pole, i.e. from the world of pure colour (hue) to the world of black, we find the quantity of pure colour lessens as the quantity of black increases. And here we are in the realm of the *shades*, for a shade is a hue to which black has been added.

If, however, we decide not to journey to the North Pole, nor to the South, but instead to approach the core of this solid, we leave behind us the pure colours (hue) and get nearer and nearer to the grey axis. So we find the quantity of pure colour diminishes and the quantity of grey increases and so we are in the world of shaded tints. A shaded tint is a hue to which grey has been added.

Now look at the diagram (frontispiece) and you will see the whole of the above set out in graphic form.

One last word. Ostwald himself has crystal-

## COLOUR HARMONY

lized the whole of the foregoing into one cryptic formula—

$$C + W + B = 1.$$

C = hue, W = white and B = black, and he establishes the fact that is no more than common sense, that if you increase the quantity of colour you must, if necessary, decrease the quantity of white or grey since  $C + W + B$  always equals a constant.

## CHAPTER VII

### THE HARMONY OF OPPOSITES

IN the section before this one, you have learned that “opposite colours are brightest” in effect.

Turn now to the Chart (Colour Reference No. 5) which shows the opposites. What have you? First there is the colour wheel which is vitally important, for all work is based upon the colour wheel. It is your navigation chart through the sea of colour.

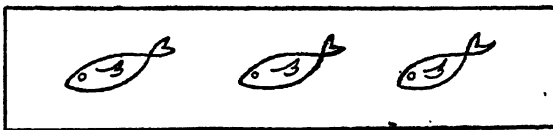
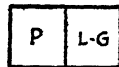
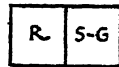
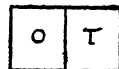
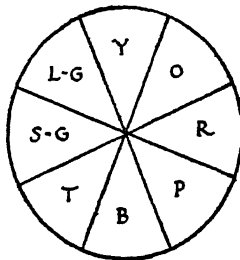
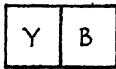
Colour this chart in the correct order—yellow, orange, red, purple, blue, turquoise, sea-green and leaf-green.

Pick out the *opposites*. What are they? They are:

1. Yellow—Blue.
2. Orange—Turquoise.
3. Red—Sea-green.
4. Purple—Leaf-green.

These groups give you the brightest and the most striking combinations of colours that are

COLOUR REFERENCE  
No. 5



1



2

NOTES

1. Colour No.1. Red Fish on Seagreen background. Then redraw and colour Fish Seagreen on Red background. Which do you prefer? Why?
2. Colour No.2. using two other opposites.

any.



## THE HARMONY OF OPPOSITES

possible. Remember you are working in pure colours—in *hues*. These pure colours are colours in their strongest form.

Look at your chart. You will see that I have “paired off” the opposites. I want you to fill in those colours. So copy the diagrams into your drawing book and then colour them as instructed. In each case you are comparing an equal amount of two opposite hues. These equal areas are no more and no less than records—to impress upon your mind that certain colours are called opposites. If you examine the position of these colours on the colour circle you will immediately see why they are called opposites.

Look again at your colour chart. You will see additional drawings. Copy these and colour them as directed on the drawing.

Which do you prefer? A lot of yellow and a little blue; or a lot of blue and a little yellow? A lot of red and a little sea-green; or a lot of sea-green and a little red? A lot of orange and a little turquoise; or a lot of turquoise and a little orange? A lot of purple and a little leaf-green; or a little purple and a lot of leaf-green? Test these out for yourself. Remember —“opposite colours are brightest” and “the

## COLOUR HARMONY

brighter the colour the less you want of that colour."

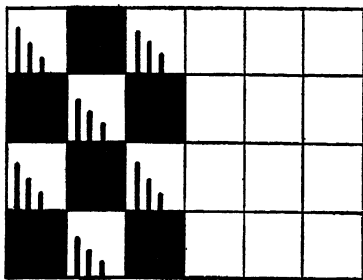
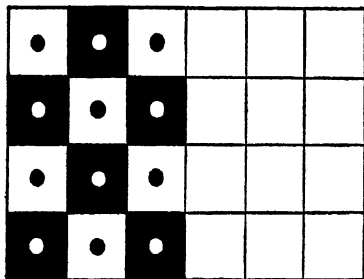
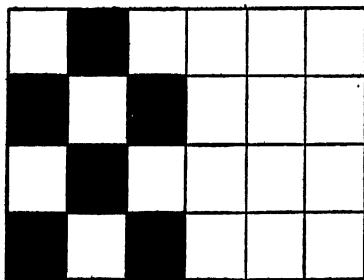
When you have chosen these groups, write underneath those you prefer: "I like this group because it follows the rule." Under the others write: "I do not like this group because it breaks the rule." Once you have proved the correctness of the rule to your own satisfaction—stick to it and apply it every time you work in colour with pure hues. You will find later on that these rules apply, not only to the hues, but also to the tints, shaded-tints and shades.

### PRACTICAL EXERCISES

1. Make a picture showing Little Boy Blue blowing his horn. He is standing on a green hill, up against a grey sky.
2. Make a picture of Little Red Riding Hood wearing her cloak walking through the wood. The trunks of the trees are brown. You can make brown by adding orange to purple, or by adding black to red or black to orange. Remember that point about colour mixing, it is a valuable hint.
3. Design an all-over pattern in red and sea-green, e.g. goldfish swimming in green water.
4. Design all over patterns for yourself using only two opposite colours.

Practical exercises are not difficult to invent when work goes forward into the world of opposite





### EARLY EXERCISES IN OPPOSITE COLOURS

These may be worked out in pigments or cut paper. If cut paper is used then the colours to be super-imposed should be in body-colour; i.e. some form of opaque colour.



## THE HARMONY OF OPPOSITES

colours. Posters—patterns—friezes—silhouettes all fall readily within the scope of the activity. But here is a suggested approach to the work which I use in my own practical work and which I have demonstrated in my lectures up and down the country.

Ask the child

1. to construct a draughtboard pattern in outline only—no colour, of dimensions, *e.g.* 6" x 6".
2. to select any one pair of opposite colours and complete the design in colour, *e.g.* yellow and blue.

This gives an all-over pattern in two colours and marks the first stage in colour.

3. to repeat Exercise 2 (above). Then in the centre of every yellow square put a blue spot. In the centre of every blue square put a yellow spot—these spots to be about  $\frac{1}{4}$ " in diameter.

As the child looks at these spots of colour he will see

(a) that the smaller area of colour tends to "jump" and then

(b) that the colour in the spot tends to disappear, producing a grey in its place.

## COLOUR HARMONY

Here then is the child's first introduction to the dynamics of colour. Emphasise the fact that colour is dynamic and not static. These colour spots "live." They have to be controlled. It is this control of colour that is the basis of all colour harmony.

4. to repeat Exercise 2 (above). Then carry the yellow into the blue square by parallel lines. And carry the blue into the yellow by parallel lines (*see* Diagram p. 67). Here then is the finest approach to abstract designing through colour.

By now the child will realise that it is necessary to control the *quantity* of colour in a design to produce the happiest effect. Happiest effect in terms of the eye; in terms of vision, that is.

Study the simple diagrams which accompany this section and you will see set out in clear form the outline of the lessons suggested above.

## CHAPTER VIII

### ANALOGOUS HARMONIES

THE word "analogous" seems to be a very hard word to understand. Actually it is not very difficult. It simply means colours in a "family group."

Look once again at your Chart. You begin as always with the colour circle.

Four colours in that circle always strike your eye first. These four colours are yellow, red, blue and sea-green. These are the four fundamental (or basic) colours in the Ostwald System.

We will begin with yellow first. I want you to choose the first colour that lies to the left of yellow—and the first colour that lies to the right of yellow. Thus you have a group of three colours—leaf-green, yellow and orange.

Look at Colour Reference No. 6. (p. 73). Underneath the circle you will find a soldier's medal ribbon. This is to be your colour record.

## COLOUR HARMONY

Which of these three colours—leaf-green, yellow or orange, is the *lightest* colour? Yellow is. Good. Which is the darkest of your three colours? Orange is, of course. This leaves leaf-green, so if yellow is the lightest in tone and orange is the darkest in tone, then leaf-green is the middle tone.

Now—how can you use your new knowledge?

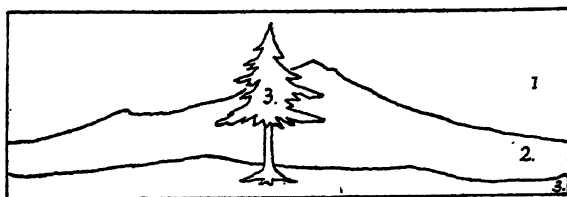
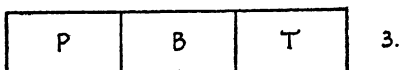
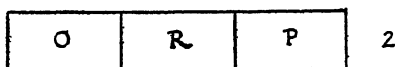
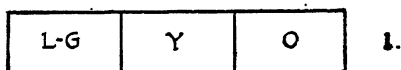
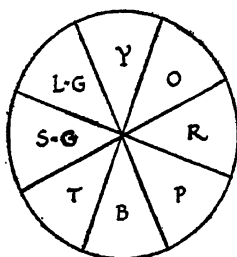
Look again at your Chart. You will see a very simple drawing of a tree, a mountain and the sky. There is no detail in the picture, it is really a poster in outline.

Now a poster, like this one, or a good picture always contains three parts. There is the background, the sky; the middle ground, the mountain; and the foreground, the tree. This shows you the simple composition of a picture. When you come to colour such a simple outline you must remember this.

The lightest tone in colour goes into the background (the sky), the middle tone of the picture goes into the middle ground (the mountain), and the darkest tone of the picture goes into the foreground (the tree).

We have already selected three colours—leaf-green, yellow and orange. We have arranged

# COLOUR REFERENCE No. 6.



Analogous Harmony

*ally.*





## ANALOGOUS HARMONIES

these three colours in order of tone value—yellow (1), leaf-green (2) and orange (3).

So—yellow goes into the sky, leaf-green colours the mountain, and orange colours the tree shape.

You have now a very attractive panel in three colours, showing a perfectly simple effect in landscape. If you want to increase the *value* of these colours and to make them stand out more brightly, outline the mountain and the tree in black or grey.

## PRACTICAL EXERCISES

1. Unless you can think of a new shape for yourself, paint the same design using other analogous colours. You have used leaf-green, yellow and orange. Now start with red. Take one to the left and one to the right of red and you get orange, red and purple. Apply the same rules of tone value and arrange your colours in the order of their tone value—putting the lightest tone first.
2. Now work from blue. One left and one right. That gives you purple, blue and turquoise.
3. Now work from sea-green. One left, one right. This gives you turquoise, sea-green and leaf-green.
4. Make up your own designs, either as pictures or as all-over patterns, using the three colours selected from the same “family groups.”

As work progresses the teacher soon finds that it is necessary to have a Colour Chart which embodies the hues, the tints and the shades

## COLOUR HARMONY

and the shaded tints. Now there are two forms in which this type of chart may be constructed. I give them both so that the teacher may select which of the two is the more suitable for the specific work of the school.

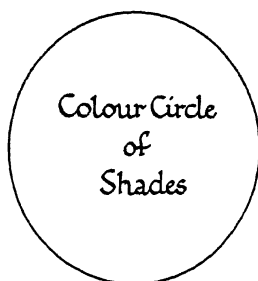
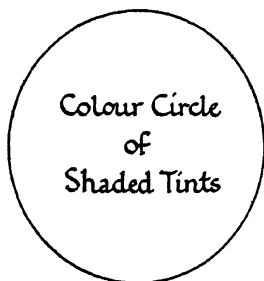
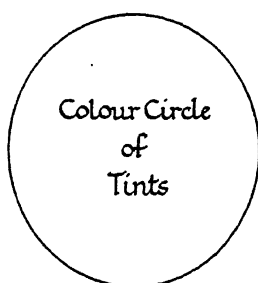
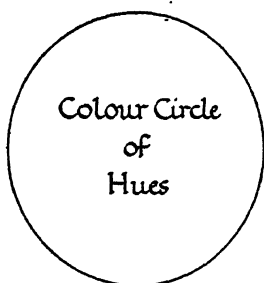
**Colour Reference No. 7** (following on the series begun in Chapter V) gives four circles all separate the one from the other. See illustration which is self explanatory. The advantage of this form of chart lies in the fact that the child can work in any one of the tones he selects without being bemused by a mess of colour.

**Colour Reference No. 8** gives the four values of each colour—the hue, tint, shaded tint and shade at one and the same time and so assists the child when he wishes to incorporate all four tone values in one design at the same time.

For advanced work the second form of chart is the more practical.

COLOUR REFERENCE  
Nº 7

OSTWALD  
HUES, TINTS,  
SHADED TINTS, SHADES.

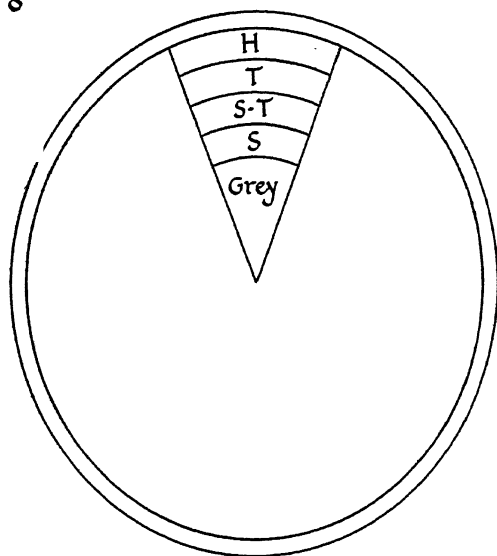


NOTE: Divide each circle into eight equal parts.  
Then make up in the appropriate range  
of colours.



COLOUR  
REFERENCE  
Nº 8

COMPARATIVE  
CHART



*For the selection of tint, shaded tint, and shade, with the appropriate hue - to be combined in one pattern at the same time.*



## CHAPTER IX

### MONOCHROMATIC OR DOMINANT HARMONY

A MONOCHROME in painting is the craft of painting a picture using only *one* colour throughout. This may at first sight appear to you to be very dull. Indeed it is not. Very beautiful pictures have been and still are being painted in monochrome. And because a monochrome is in one colour only, and because the fact that this picture is in itself a harmony—we say that it is an example of *dominant* harmony—because *one colour is dominant* throughout.

There are three methods of painting monochromes. These I will describe to you, so that you may choose for yourself which of the three methods you prefer. Then when you have learned from experience which of the three you like best—work at that method with a will and master it. The monochrome is a magnificent piece of art.

## COLOUR HARMONY

### METHOD ONE

Draw a simple landscape or copy Diagram No. 1 (p. 85) in good outline. Mix up a quantity of colour, e.g. orange hue, in your water pot—or in a potted meat jar. See that the colour has strength, i.e. do not have a wishy-washy colour. Test out on paper until you feel you have a good wash—but remember that the beauty of water-colour lies in its *transparency*. Keep you wash transparent.

You have now

- (1) The design you are to colour and
- (2) The wash prepared for the colouring.

Fill your brush and begin to wash the design with a *flat wash*. Colour the design *all over*, ignoring the shape of the design. You will finish up the first stage with an orange rectangle, through which the lines of the design are showing. This is the first tone in your monochrome.

Using the same wash, stir well to bring it back again to full strength. Some of the pigment may have sunk to the bottom.

Now charge your brush again and begin the second wash. Be absolutely sure that the first wash is dry before you begin to lay on the



## MONOCHROMATIC HARMONY

second wash. The second wash covers all the design except the sky. Thus you are putting a second wash on the mountain and upon the trees, increasing the tone of these in intensity. Stir your wash again. Charge your brush and begin the third wash. This time you will paint only the trees and the ground. You will *not* paint either the sky or the mountain.

You possess now a landscape painted in one colour—in monochrome. Tone one is the colour of the sky. Tone two is the colour of the mountain, and tone three is the colour of the trees. The background is tone one, the middle ground is tone two and the foreground is tone three.

And this is the first method by which you can paint in monochrome.

## METHOD TWO

For this I want you to use the same design, so redraw it. Now mix up a good orange wash—strong colour—but still transparent. Paint in the *foreground* first of all. When this is dry add about a teaspoonful of clean water to the original wash. Stir well and then paint in the middle ground. When this is dry add another teaspoonful of water to the original wash and paint in the

## COLOUR HARMONY

sky. In each case you are weakening the colour and working *back* from the colour to the white paper.

In the first method you were working *away from* the whiteness in the colour into denser colour and if you go on long enough with your overwashing you will find your orange begin to turn brown. A hint worth remembering.

### METHOD THREE

For this type of monochrome you will work in *opaque* colour, not in transparent colour. Opaque colour is either poster colour, showcard colour, or the New Art Powder colour.

Use the same design again, for this makes explanation so much easier.

Paint the sky in pure orange taken from the pot or palette. Add two brushfuls of grey to the orange and paint in the middle ground. Add two more brushes of grey to the orange and paint in the foreground.

You now have the background in pure orange, the middle ground in orange + two grey and the foreground in orange + four grey.

You have now deepened your tones as you have passed from background to foreground.

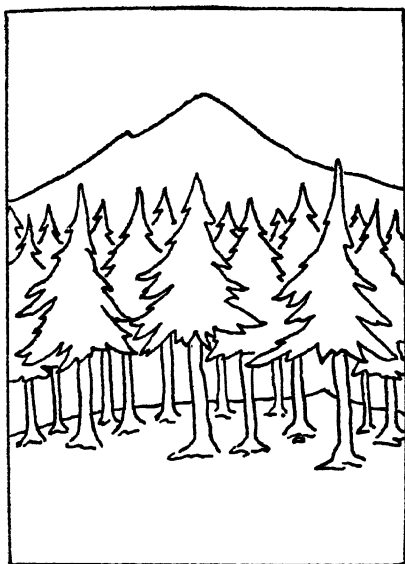


Diagram 1

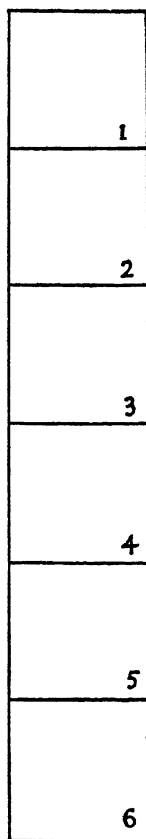


Diagram 2



# MONOCHROMATIC HARMONY

## PRACTICAL EXERCISES

1. Draw a rectangle 1"  $\times$  6". Divide it into 1" sections. Mix up a colour wash and wash the whole of the rectangle in the colour. When dry repeat the wash, only miss the top bar. When dry wash again, only miss out the two top bars. When dry wash again and miss out the three top bars. Continue until you have overwashed in this manner all the sections in the diagram (*Diagram 2*).
2. Note how the tone value of the colour alters. Make notes alongside recording how each wash was obtained.
3. Paint a country scene in monochrome.
4. Paint a scene in the swimming baths, using green as the colour wash.

## CHAPTER X

### THE NEUTRALS

PURE colours we call *hues*. There are other "colours" which are of great service to the artist, and these we know as *the neutrals*. These neutrals are black—grey—white.

I want you to imagine that you are looking at a long ribbon. At one end of that ribbon you find black. At the other end of the ribbon you find white. Now as you pass your eyes from the black end along the ribbon until you come to the white end, you pass over certain "colours" which are really not black, nor are they white. They are a little of black and a little of white, that is they are *greys*, and the greys lie between black and white. If you look at Diagram 3 belonging to this chapter you will see what I mean. Here is shown a ribbon with black at one end and white at the other. In between there are three sections to be coloured

## THE NEUTRALS

in grey. How will you get the correct greys? It is really very easy.

1. Draw the ribbon 5" long and 1" deep.
2. Divide this ribbon up into five one inch squares.
3. In the extreme left hand section put in your pure black.
4. Into the extreme right hand section put in your pure white.
5. Now take two brushfuls of black and two brushfuls of white and mix up well together. This will give you a grey. The middle grey which lies in Section 3.
6. Take two brushfuls of middle grey and two brushfuls of pure black. Mix well together and this gives you a grey which lies midway between pure black and middle grey. Paint in Section 2.
7. Take two brushfuls of pure white and two brushfuls of middle grey. Mix well together. This gives you another grey which lies midway between middle grey and pure white. Paint in Section 4. And now you have made a neutral ribbon which runs easily from pure black to pure white.

## COLOUR HARMONY

We shall have more to say about these neutrals later on in this book. At the moment this is all that you really want to know about them.

Just as it is possible to build a picture in monochrome using a *hue* as the basic or dominant colour, so it is now possible to build a picture using black, white and grey. And this is another form of monochrome. But it is a very important form of monochrome, for it is the basis of every photograph that you see, especially the pictures you find in your daily papers.

### PRACTICAL EXERCISES

1. Make a copy of the very simple design given in *Diagram 4*. Draw this only in outline as shown in the illustration. Make your picture 6" × 4" in size.
2. Leave the sky *white*. That is the background to your picture.
3. Colour the hill—*middle grey*. That is the middle ground of your picture.
4. Colour the house—in *black*. That is the foreground in your picture.

Once again you see you are working in tone values. The background has the lightest tone. The middle ground has the middle tone and the foreground has the darkest tone.

5. Now redraw the design and *reverse* your colouring, making the sky black, the hill middle grey,



Black	2	Middle-Grey	4	White
1.		3.		5

Diagram 3.

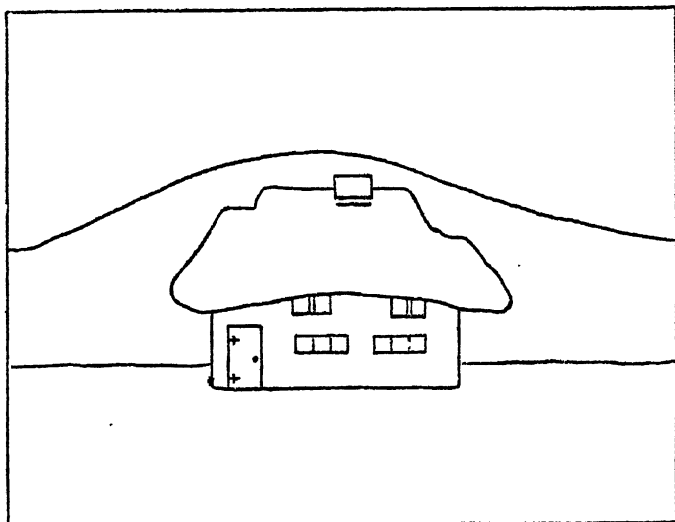


Diagram 4



## THE NEUTRALS

and the house white. Compare these two effects. Which do you prefer? Why?

6. Draw three designs of your own. Use your own colour schemes, but keep your work as expressions of black-white-grey.

# CHAPTER XI

## COLOUR MIXING

THERE are three different methods of colour mixing.

### 1. The Subtractive Method.

This is the method you use when you mix yellow and blue together and get a green. The green you have made is not a good pure green, such as you can buy. It is a green that appears to be less brilliant to the eye than either the yellow or the blue you have used to make it. Because the brilliancy of the colour is *less* than either the yellow or the blue, we call it a *subtracted* colour, because you have taken away from it some of its brightness.

You cannot make a colour by mixing two colours together without losing something of the brightness. So to-day, as we are being more scientific about our colours than ever before,

## COLOUR MIXING

we prefer to use a made up green, or a made up colour.

A made up colour means a colour that is prepared for you by a colour chemist. Although you know the danger of subtractive mixing you should experiment for yourself, for it is important for you to *see* what happens when you mix two colours together, e.g. yellow and blue—blue and red—red and yellow and so on.

The bases of the old three colour system depend upon this subtractive method of mixing colours.

### 2. The Additive Method.

The additive method of mixing colours is not used at all by the artist working in pigments, i.e. paints. The additive method is used by the physicist—the scientist who works with coloured lights, with electricity and magnetism.

The physicist splits a ray of white light up into “all the colours of the rainbow.” He allows the ray of white light to pass through a glass prism and these colours appear just as you see the colours of the rainbow when you look at white light through a piece of broken glass.

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But since these colours come from white light—they go back into white light when they are mixed together again. And here is an interesting fact. If the physicist throws a red light upon a white screen, and then alongside that red light he throws a green light, he has side by side two discs of coloured light, red and green. Like traffic lights. But if he allows the red and the green light to meet on the screen he makes a yellow light. And that is something you cannot do with paint. Mix red and green paint together and see what result you get. It will not be yellow.

So the method of mixture used by the physicist does not help us when we are using paint.

### 3. The Medial Method.

The third method of mixing is the one used by the psychologist—a scientist who enquires into the way our minds are working. The psychologist takes a circle of cardboard and paints a part of it yellow and a part of it blue. He sticks a match through the middle of the circle and so makes a little spinning top. Then he spins his top and the yellow and the blue mix up together and you see grey. He mixes

red and sea-green in the same way and he sees grey. And so on for all the *opposite* colours in the colour circle.

This is called the *medial* method of mixing—and the real mixing is done not with paint, nor with light rays, but with the *eye*. *You are mixing your colours in your eye.*

The colour chemist finds out the true yellow, the true red, the true blue and the true sea-green that will produce grey when two colours are spun together and he matches up his paint. These paints are the ones you use—the real Ostwald Standard Colours because Dr. Ostwald was the great scientist who perfected this colour system.

Now how does this new knowledge apply to your work? You have learned that the colours in the Ostwald Circle are yellow, orange, red, purple, blue, turquoise, sea-green and leaf-green. You have learned that the neutrals are black, grey and white. You have to combine all your previous knowledge and learn how to mix these psychological colours (a psychological colour is one which depends upon the eye for its accuracy).

This is quite easy and if you follow my instructions very carefully you will soon learn the beauty

## COLOUR HARMONY

of the colour world that waits just round the corner for you.

If you look at the Colour Harmony Chart you will see *The Ostwald Colour Grid* which I invented some time ago and which appears in my *Ostwald Notebook*.

The first column contains all the pure *hues*. Yellow, orange, red, purple, blue, turquoise, sea-green and leaf-green—in that order, i.e. in the order of the colour circle. (When you are making up this chart I advise you to use “body colour,” i.e. opaque colour—poster colour or showcard colour—or New Art Powder Colour. It is much easier.)

In column one then you have the eight Ostwald Standard Hues.

In column two you place all the *tints*. A tint is a pure hue plus white. So you take two brushfuls of yellow and add to them two brushfuls of white. Mix well and paint in the little section that lies alongside the yellow hue.

Do this for all the eight Ostwald Standard Colours, and you will have eight new colours; all tints of the eight Ostwald Standard Hues. That's column two finished.



# COLOUR HARMONY CHART

H	W	G	Bk
Y			
O			
R			
P			
B			
T			
S-G			
L-G			
H	W	G	Bk

NOTES: H = Hue    W = White    G = Middle Grey  
Bk = Black



## COLOUR MIXING

Into column three you will place all the *shaded tints*. A shaded tint is made by adding middle grey to a pure hue. So you take two brushfuls of pure yellow hue and two brushfuls of middle grey. Mix well and paint in the section that lies alongside the yellow tint.

Do this for all the eight Ostwald Standard Hues and you will have the eight shaded tints of those hues. That is column three filled.

Into column four you will place the *shades*. A shade is a hue which has black added to it. So—you take two brushfuls of pure yellow and two brushfuls of black. Mix well and paint in the section alongside the yellow shaded tint. Do this for all the eight Ostwald Standard Hues and you have a column of shades. And that is column four filled.

Now you have thirty-two colours. Eight pure hues and twenty-four new colours which you have made yourself.

How are we to use this very large range of colours? It is still quite simple.

You can make a *monochrome* of any one colour, if you use a hue, a tint, a shaded tint, and a shade of that colour in the same design. Always

## COLOUR HARMONY

remember, of course, that you will want only a *little* of the brightest colour.

So you can combine yellow, the tint of yellow, the shaded tint of yellow, and the shade of yellow all in the same picture. Yellow being the brightest colour will therefore be used in the smallest quantity.

### PRACTICAL EXERCISES

1. Make an all-over pattern using only one colour in hue, tint, shaded tint and shade.
2. Paint a picture in monochrome using a hue, tint, shaded tint, and shade, of the same colour.
3. Paint a picture using only a tint of any of the eight Ostwald Standard Hues.
4. Paint a picture using only the shaded tints of one selected hue.
5. Paint a picture using the whole colour grid in some form or another. You will not want to use all the colours but you will find your new knowledge very useful to suggest:—

(a) distance

(b) shadows

in your new work.

Although the main work with beginners tends quite naturally to become concentrated upon the Ostwald Standard Eight Colour Circle, yet the time does come when one's ambition is forced to go adventuring further afield. To sally forth

## COLOUR MIXING

into a wider domain the student is compelled first of all to create the twenty-four Colour Circle. This is not difficult if one recalls the Ostwald Notation affixed to the eight Standard Hues.

Yellow is 2NA, orange 5NA, red 8NA, purple 11NA, blue 14NA, turquoise 17NA, sea-green 20NA, and leaf-green 23NA. Thus we have the circle indicated, but with obvious gaps between each hue. These gaps need filling. To do this it is perhaps not possible to lay down a hard and fast rule—nor is it perhaps desirable. But what I do myself may serve as a guide. When I want to fill the gaps between 23NA (leaf-green) and 2NA (yellow) I first mix up in equal quantities the 23NA with the 2NA. This gives me a colour which lies midway between 23NA and 2NA. Then I add a little more 23NA to the mixture and that “steps it back” a stage towards 23NA and so I get 24NA. Then I add a little more 2NA to the original 50-50 mixture and that “steps it forward” a stage until it is one stage before 2NA, i.e. 1NA. So I have a smooth sequence ready 23NA, 24NA, 1NA, and 2NA.

So I proceed around the circle until every gap has been filled up. The test lies in the fact

## COLOUR HARMONY

that the eye must run smoothly around the circle, without stop or fall. If your eye can do this your mixtures are accurate. But I warn you it is an exercise that may not be undertaken lightly.

When you possess the twenty-four Colour Circle you can then begin to broaden your application of the rules of colour harmony.

First there are the **Dyads**—the combination of two hues. Suppose you wish to compose hue 9 and hue 21 in a harmony. These must be 9NA with 21NA, or 9IE with 21IE, etc. In a word, the combinations should be taken from the same circle of pure hues (NA), of shades (NG), of tints (GA) and so on. Hue with hue, tint with tint, shade with shade, shaded tint with shaded tint.

**Triads** are formed by grouping three hues taken at equal distances from the Colour Circle. Thus, 5, 13, and 21 may be combined in either hue, tint, shaded tint, or shade.

**Tetrads** are formed by grouping four equidistant hues together taken from the Colour Circle. Thus 3, 9, 15 and 21.

**Sextads** are formed by grouping six equidistant hues together. Thus, 1, 5, 9, 13, 17, 21.

## COLOUR MIXING

**Octads** are formed by grouping eight hues together, thus, 2, 5, 8, 11, 14, 17, 20, 23.

O. J. Tonks has invented an exceedingly useful colour wheel called the Winoston Chart which by a twist of the mask gives triads of harmonies based upon the twenty-four Circle. This same chart gives harmonious groups in groups of 4, 6, 8 and 12 hues in addition to the triads and so is a unique piece of apparatus.

Selections from Tonks' triads I give below as suggestive starting points for harmonious triads 2, 10, 18. This is a harmony based on the Ostwald Standard Yellow. 5, 13, 21, a triad based upon the Ostwald Standard Orange. 8, 16, 24, a triad based upon the Ostwald Standard Red.

Each Standard possesses its harmonious triad.

## CHAPTER XII

### ORIGINAL EXERCISES FOR FREE EXPRESSION

1. Illustrate scenes from the following stories:—

- (a) The Pied Piper of Hamelin.
- (b) Robin Hood.
- (c) Red Riding Hood.
- (d) Little Boy Blue.
- (e) Hiawatha.
- (f) Brer Rabbit.
- (g) The Ark and The Rainbow.
- (h) King Arthur.
- (i) The Lady of Shalott.
- (j) Robinson Crusoe.
- (k) The Fairy Scene from “Midsummer Night’s Dream.”

2. Design a Poster advertising:—

- (a) A School Concert.
- (b) A School Play. Put in some of the characters in the play.
- (c) A School Magazine.



## EXERCISES FOR FREE EXPRESSION

- (d) National Health Week.
- (e) Kindness to Animals.
- (f) Protection of British Birds.
- (g) National Savings Association.
- (h) The School Library.
- (i) School Sports Meeting.
- (j) Eat More Fruit.
- (k) Drink More Milk.

### 3. Design the following:—

- (a) A table cover.
- (b) A book cover.
- (c) Fabric for a curtain.
- (d) A design for stencilling upon a cork mat.
- (e) A design for a box lid. Show the contents of the box when filled.
- (f) Costumes for a play.
- (g) A stage setting for the school play. Give costumes and the stage design. Make it a picture of the stage when the play is on.
- (h) The Evolution of Costume from the History lesson.

You may work these out in water colour or in poster, showcard, New Art Powder Colour

## COLOUR HARMONY

or in coloured paper. Just whichever you think is the more suitable. Make large drawings; not little sketches.

Standardisation within the colour world aids creation. The fact that the child is taught to recognise the eight standard hues as the bases of colour harmonies, gives to him a firm foundation right from the start. Then when he has learned how to match up all the other colours to these eight Ostwald Standard Colours he can begin to reduce the multitudinous colour world to order.

Teachers are attracted to the Ostwald System because of its correlative value. As I have emphasised so very many times in the past—the teacher of design has seen the work of the class completed in one range of colours and then when those colours have gone into the needlecraft world, the colours of the wools, silks and fabrics are not identical with the colours of the paintbox. The needlecraft teacher has made the match as near as possible to the original, but this “as near as possible” principle is actually not near enough, and the original beauty in the original design has been destroyed. To-day that is no longer necessary. Pigment and fabric

colours may be used in inter-relationship. Designs in the art room and designs in the needlecraft room have become identical. Of the accepted standard groups there are six distinct "families." Here they are:

NA—the purest hues available for ordinary school work.

IA—pure hue plus white.

EA—pure hue with an increased percentage of white.

NE—pure hue plus black.

NI—pure hue with an increased percentage of black.

IE—pure hue plus grey.

The additions are, of course, in terms of pigments. The dyer achieves the necessary tone in his own peculiar manner.

Since each of these colour groups are set out for the twenty-four hues in the full Ostwald Circle, a circle which can be made in the classroom from the eight Ostwald Standards—the creative possibilities are enormous.

## CHAPTER XIII

### HOME DECORATION

SOME of the more progressive schools of to-day have an art activity which is bound to find reflection in the adult life of the child. This activity bears the name—Home Decoration—and means exactly what it says. It is a form of work designed to inculcate in the mind of the student a firm knowledge of the values of harmony in household decoration.

It is no uncommon thing to find a good picture murdered because behind it falls an execrable wallpaper. So too one may find quite a good colour scheme ruined by the placing of a vase, vile in shape and colour, upon a window-sill or mantelpiece.

In the past the English taste has run to heavy bunches of flowers in wallpaper design and fabric design with no thought, indeed no cognisance, that everything in a room should become part and parcel of a harmonious whole.

## HOME DECORATION

Now if those in whose hands lie the aesthetic training of the young mind remember that their task is not to train a generation of artists, but to raise the common standard of good taste among our nationals, then rapid progress can be made in the aesthetic appreciation of our people.

Standards of good or of bad taste are reflected nowhere more certainly than in the home. And the tendency to-day is most certainly on the upward trend. A casual walk through the streets of any town, city or even village in this country will show a much higher standard of taste in dress among the girls and womenfolk than was evident in the pre-war years. This care and attention is bound to have a marked influence upon the generations that are yet to come. The maids of to-day are the mothers of to-morrow and every mother views her offspring as a potential decoration—even when perhaps it may not be exactly so.

So with this progressive movement as the background let us apply ourselves to Home Decoration. It is quite simple and suitable not only for the child and the student in the school, but as an evening's pleasant occupation before

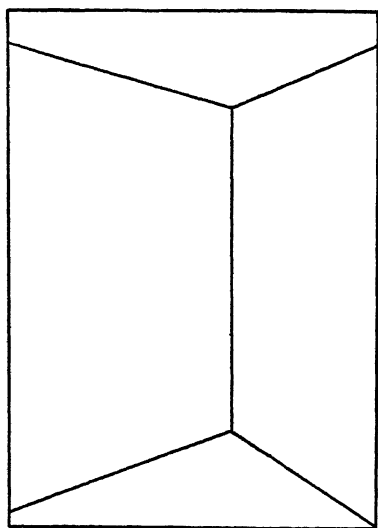
## COLOUR HARMONY

the house goes into the throes of repainting and spring cleaning.

1. Sketch in simple outline a convenient corner of the room which you intend to decorate (See illustration).

2. Using the colour apparatus which gives at a glance the hues, tints, shaded-tints and shades of each of the Ostwald Standards, select the dominant hue which will be the basic colour in your scheme.

3. Take into consideration the position of the room, whether it faces south (when you will



## HOME DECORATION

require the cool colours) or whether it faces north (when you will require warm colours). Examine carefully the lighting. Is the room well lighted or imperfectly lighted? Choice of colours will depend quite a lot upon this problem of natural illuminations.

4. Select your colours. Make them up in water-colour because the beautiful transparency of water-colour brings the light of day into the colour.

5. Paint your little drawing, working out the position and the grading of your selected colours.

Then when you decorate the room yourself, or when you employ a man to do so, you have an exact working drawing to serve as a guide.

When you are satisfied with the surface colour scheme of the walls there is the woodwork and the fabric furnishing. Many a good colour scheme upon the walls of a room is destroyed by the bizarre effect of painted woodwork. The colour of the woodwork should appear in your original sketch, for this is a crucial point in the design.

Curtaining, carpets and fabrics for furniture should tone with the general scheme. This is

## COLOUR HARMONY

neither difficult nor expensive. If you possess a distinctive carpet or a distinctive rug which you wish to retain in your room after redecoration, then make this the starting point in your colour design and blend all others back to the rug or carpet. The creative value of this work lies not in the wholesale abolition of all previous possessions. Rather does it lie in utilising the *best* of those possessions and so utilising them that their beauty is either discovered or enhanced.

In a word, you approach the problem creatively, as the potter approaches his peculiar lump of shapeless yellow clay. Skilful manipulation makes of that clay a pot of beauty. Skilful adaptation makes of your possessions things of unsuspected beauty. And is not that really worth while?



## CHAPTER XIV

### COLOUR AND WEAVING

ONE of the finer growths since the War both in school and in the national life in general has been the renaissance of hand weaving. Accepted as one of the basic crafts in education, children learn the technique in school and get to appreciate the beauties not only of the harmonies made possible by this hand-craft, but also the emotional stimulus that is derived from hand labour excellently done. We cannot have too much of this emotional training; it is essential to our wellbeing if we are to preserve a spiritual balance in a mechanised civilisation.

There is, however, a much profounder side to weaving than just the mechanical processes of weaving strands of wool together on a loom. It is true that some people make excellent technical weavers and these same people are useless if asked to create their own designs.

## COLOUR HARMONY

This is tragic, for it is not at all difficult to make one's own design providing the basic knowledge of colour harmony is well grasped. This volume has been written to explain that basic knowledge. This chapter is being written to show yet another form of its application. And here is a very simple method setting forth one approach to colour analysis and its complement, colour synthesis.

Every one of us with an eye for colour has a special preference in, shall we say flowers. The popularity of the question "what is your favourite flower?" in the common questionnaire proves this contention.

1. Select your favourite flower. It may be the orange coloured nasturtium (Fig. A). Very well, then we will base our observations upon this plant.

2. Look well at the flower. You will see that it contains orange, yellow, a little brown (in the stamens) and less white. Actually, in terms of proportion, you find that the largest quantity of colour is in orange, a little less in yellow, less still in brown and a very small proportion in white (Fig. B). This then gives you the weaving

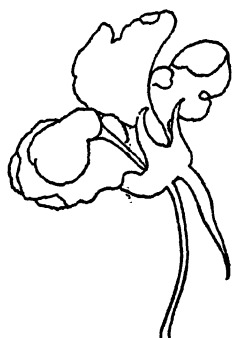


Fig. A



Fig. B

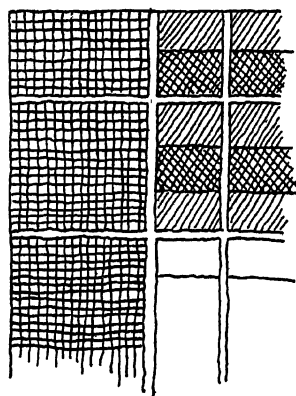






Fig. C

#### KEY

-  Brown
-  Yellow
-  Orange
-  White Bars  
running vertically  
and horizontally through  
the pattern.

The Brown forms the left and right extreme borders of the design. The centre panel is composed of Yellow and Orange, in proportion of 3 Orange and 2 Yellow.



## COLOUR AND WEAVING

proportion that will ultimately reappear in the woven scarf or cloth (Fig. C).

3. Make a simple graphic drawing in which these quantities are set out in colour masses. This will serve as a guide.

4. Make your design based upon these four colours, keeping the actual proportions intact.

5. Weave.

Variations can be introduced through the use of tints, shades, and shaded tints of the selected colours. As a matter of fact in the four colours of this particular nasturtium the yellow is the basic hue, the orange is a basic hue, the brown is a shade of orange (i.e. orange plus black) and the white is a basic neutral. So you can break down the yellow and the orange still further by the addition of the neutrals if you so wish.

This type of work refers specifically to the more geometric form of design where you have bars, parallels and rectangular shapes of colour all harmonising together. If you grow ambitious and develop your craft into figure work in weaving, the same principles apply.

Analyse first, re-create afterwards.

## CHAPTER XV

### COLOUR TESTS

As I have indicated elsewhere in this book, colour is a *sensation*, and because it is a sensation it has influence. But what I did not indicate, because it was not strictly relevant, but is relevant now, is the fact that the influence of colour upon human beings is largely individual.

Each and every one of us respond to the stimulus of colour in our own peculiar way. This response is due very considerably to experiences, some good, some bad; to adventures, some exciting, some normal (if one can have a normal adventure); to reactions, some gentle and some violent, all of which have happened to us prior to the immediate colour stimulation. Some people dislike red intensely. Some dislike a particular tone of blue. In one or two cases I have found people who dislike green, but here it is a special quality of green. Why is this? The answer is fairly obvious. It is because

## COLOUR TESTS

at some one point in the past something happened that now reminds the spectator of an association with the particular colour that is a reminder of unhappiness or discomfort.

People interested in colour—and who is not so interested?—should get all these inhibitions straightened out, or if it is not possible to straighten them out it is possible to know of their existence, and so to avoid the ill-effects of their influence.

Let us become more personal. What is your own reaction to colour? This question is very pertinent, for it will reveal why it is that you prefer certain colour schemes and dislike others.

To discover this you should work with a group of friends.

The apparatus you require is simple and inexpensive. All you require is a set of coloured discs about 8" in diameter. Each disc should be coloured in one hue only. Thus you will require one disc each for yellow, orange, red, purple, blue, turquoise, sea-green, and leaf-green. Then you should have a disc coloured black, another coloured grey (g) and a third coloured white.

That makes a complement of eleven discs. Give to each of your group a piece of paper and

## COLOUR HARMONY

a pencil. Allow *one minute only* for each answer. Divide your paper into three columns thus:—

<i>Colour</i>	<i>1st Reaction</i>	<i>2nd Thought</i>

If you yourself are taking part in this colour test, instruct the operator to mix up the discs so that no one knows the coming sequence of the colours.

When all is ready for the word “Go” get the operator to explain what is required.

1. A colour will be exposed for one minute only.

2. As the colour is revealed write in column one the name of the colour exposed. In column two write the first thing that comes into your head. No matter how ridiculous it seems—write it. Actually, since you are working at



## COLOUR TESTS

high speed, there will be no sense of the ridiculous. Leave column three blank.

That is all for the first part of the test. Name the colour, record the simultaneous thought that arises. Do this from the eight Ostwald Standards and the three neutrals.

When all eleven colours have been so treated, you can proceed to the final stage.

Go back over your record and in the third column write any second thought that comes to you. For this there is no time limit, for it is based upon reflection and upon recall and so may take a longer time to order your ideas.

When you have finished the test you will be, I think, a little surprised and not a little enlightened by what you have written on the paper before you.

A second type of test is more difficult. It is the selection of the favourite colour. This sounds ridiculously easy. Try it.

Have before you all the eight Ostwald Standard hues and the three neutrals. Eleven discs. Look at them carefully. Select with equal care your favourite colour out of this set of eleven.

## COLOUR HARMONY

And then range the remaining ten colours in descending order of preference, so that at the top of the pile you will have your favourite colour and at the bottom of the pile the colour you like least of all. When this is done write out your record. Be free and frank and abstain at all costs from being clever. Be honest.

So your second record will read as follows:—

<i>Colour Reference</i>	<i>Remarks for Choice</i>

If my reader is a teacher the foregoing tests will reveal much that is of value and which is in the minds of the pupils. It will show why A always chooses a certain set of hues and ignores completely and definitely others in the circle. It will show why B always paints in greens to the exclusion of all else. I had one such pupil

## COLOUR TESTS

and by my testing I discovered that it was all due to something the family doctor had said in the hearing of the child.

The child was exceedingly nervous and a painful stammerer. On the advice of the doctor the child's bedroom was painted green and he was sent on all occasions possible into the country; "for green will cure you laddie", said the doctor to the painfully conscious child, rendered even more nervous because of his awareness of his speech defect. So the reaction followed—the child always painted—and painted excellently—in green. It was part of his cure and he was most anxious to have normal speech restored to him.

It will show why C prefers to paint in the neutrals. Again from my own case book: there was the child who used black, white and grey to the exclusion of all hues. A very unusual occurrence. But the child was suffering from myopic astigmatism and so saw strongly in terms of grey. With the use of spectacles the child grew colour conscious and in time an effective artist.

So you see this is not a waste of time. By these tests both upon yourself and upon your

## COLOUR HARMONY

pupils and students you may be rendering a signal service of far reaching effect.

The influence of colour is profound. Its roots are in the past, its expression is in the present, the future is in the hands of the individual who studies colour not only in terms of pigment but also in terms of psychology, and in the psychology of colour lies the latent power.

## CHAPTER XVI

### BIOGRAPHICAL NOTE: DR. WILHELM OSTWALD

THE system of Colour Harmony, now known as the Ostwald System, was named after its discoverer, Dr. Wilhelm Ostwald of Leipzig. Dr. Ostwald was born in 1853 and died in 1932 so we may claim him as a scientist of our own times.

A scientist known all over the world for his brilliant work, he was awarded the Nobel Prize in 1909. The Nobel Prize is the greatest reward that can be given to any man, for it means that his work is not only out of the ordinary, but that it contributes to the betterment of mankind.

Dr. Ostwald was a physicist, but he realised that a new interpretation of colour was required by the artists and business men using colour in their work, if we were to realise to the full the glories of colour harmonies. So he devoted much of his life to the study of how colours affect us, and the range and value of colours that would

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bring the happiest results. This investigation has now been given to the world, and is being used under the name of the Ostwald System of Colour Harmony, with its special rules and carefully selected colours.

Dr. Ostwald was a Doctor of Science, *Honoris Causa* of the Universities of Cambridge, Aberdeen, Liverpool and Toronto; Honorary Member of the Chemical Society of London, and of the Royal Institute of Great Britain. Honoured by the greatest scientists of the world, we now pay tribute to him, after his death, by using his system in all walks of life where colours are essential.



















